

## **REMARKS**

### **CLAIMS 1, 38, 41 AND 68**

Claim 1 has been amended to require that the caching be performed at the proxy server and that only the identified sub-blocks are cached and that the central and proxy servers are in a network environment, where the proxy server is located in the network between the central server and the one or more client(s). This is illustrated in one embodiment as shown in Fig. 5. Claim 1 has also been amended to include: “combining sub-blocks of a title cached at the proxy server with sub-blocks of the title not cached at the proxy server and transmitted from the central server to the proxy server, for delivery to the one or more client(s).”

Caching as used herein is in the context of supplying information through networks such as the internet. In this context, caching has the meaning that information that has been requested from a source in the past is stored at an intermediary device in the network between subscribers and the source so that it can be sent again from this intermediary device in response to future requests to reduce latency and network traffic, instead of having to ask for the information again from the original source, which is usually located at a remote location from the subscribers.

Examiner relies on col. 4, lines 5-25 and Col. 13, lines 26-31 as teaching the “identifying” and “caching” of claim 1. This reliance is misplaced. Tanaka teaches nothing more than a system where different files in a media program are stored separately in servers, and these files are retrieved in response to a user request and staged at a broker before being sent to the user. After being sent these files are replaced by other files from the servers and are no longer stored at the broker (i.e. Tanaka does not cache these files), so that they will have to be retrieved again from the servers for any future requests. Therefore Tanaka does not teach or suggest caching the identified files (or other units of the program) at an intermediary proxy server located between a central server and the user. As explained below, Tanaka also does not teach or suggest the feature of combining the cached units with uncached units from the central server, in order to reduce the transmission bit rate from the central server to the proxy server for sending the program. This is explained in more detail below.

Tanaka's goal is to provide real time transmission of video programs such as television programs when a large number of subscribers request such programs. Prior systems may be overwhelmed by such requests due to the time lag between the time the requests are received and the transmission of the programs. Col. 1 lines 20-27, 36-43.

Tanaka proposes a system where different media segment files (MSFs) of the same video program are stored on different media segment file servers (MSFS 1000, 1001, ...). The requests from subscriber terminals are handled by Sequence Control Brokers (SCBs 3000, 3001...). System manager (SM 2000) of Fig. 5 manages the requests. Memory 21 is used in each of the SCBs to store the MSFs of a particular video program retrieved from different MSFSs before they are transmitted to the subscriber terminal. Thus, memory 21 serves as a staging area to gather some of the MSFs of a video program stored in different MSFSs, before they are sent to the subscriber. Therefore, each of the SCBs temporarily stores the MSFs sent from the MSFSs before these MSFs are sent to the subscriber. After these MSFs have been sent, they are replaced by fresh MSFs from the MSFSs, so that memory 21 does not overflow.

From the above, it is clear that Tanaka does not combine sub-blocks of a title cached at the proxy server with sub-blocks of the title that are not cached at the proxy server and that are instead sent from the central server to the proxy server.

Moreover, Tanaka fails to teach or suggest first identifying sub-blocks that are to be cached, and then caching only the identified sub-blocks at the proxy server. In fact, the concept of a proxy server located between the central server and the user and used for caching only a part of the data to be sent to users to reduce transmission rate of the central server is totally absent from Tanaka.

The sections in Tanaka relied on by the examiner in the rejection do not teach or suggest the above features of claim 1. Col. 4, lines 5-25 of Tanaka describe the configuration of a frame block transmission unit known also as media segment file servers (MSFS 1000, 1001, ...). An example of these units is shown in more detail in Fig. 10 and described in more detail in cols. 14 and 15 of Tanaka. Thus, col. 4, lines 5-25 describes nothing more than how a certain media segment file MSF (1024 bytes) stored in a sector of a hard disk HD, after being retrieved in response to a request stored in one

of the queues 41-4k, is broken into a number of sub-blocks. See col. 14, lines 46-58. These sub-blocks are then transmitted through switch 4000 to one of the sequence control brokers SCBs requesting the MSF. Thus the sub-blocks of equal size in Col. 4, lines 5-25 relied on by the examiner are all stored in the same hard disk in the same MSFS. They are not stored at any intermediary location (such as in the SCBs which are regarded in the office action as the proxy servers).

Col. 13, lines 26-31 of Tanaka relied on by the examiner describes nothing more than controlling memory 21 to prevent overflow and underflow. Memory 21 is used in each of the SCBs to store the MSFs of a particular video program retrieved from different MSFSs before they are transmitted to the subscriber terminal. Thus, memory 21 serves as a staging area to gather some of the MSFs of a video program stored in different MSFSs, before they are sent to the subscriber. In claim 1, only those sub-blocks identified in the identifying are cached. Unlike claim 1, over time, all of the sub-blocks in Tanaka of each MSF retrieved from the MSFSs are stored in memory 21, rather than only those that have been identified in the “identifying.” Thus, memory 21 in each SCB does not store only the sub-blocks distributed over the blocks of a media data title identified in the “identifying.”

Tanaka does not reduce the transmission bit rate from the MSFSs taken as a group to the SCBs, since all of the sub-blocks in the media program must be sent from the MSFSs as a group. This is again very different from claim 1.

Claims 38, 41 and 68 distinguish from Tanaka for reasons similar to those above for claim 1.

## **CLAIMS 28 AND 29**

In amended claims 28 and 29, each of or at least one of the proxy servers comprises a cache memory that stores some but not all of the units at least one or some of the media titles. The cache memory stores or caches some but not all of the units of the at least one or some of the media titles. The cached units are then combined by the proxy server(s) with uncached units received from the central server to form complete media title(s), which are then transmitted to client(s) by the proxy server(s). This is not the case at all in Tanaka. As we discussed above, over the course of time during the transmission

time period, memory 21 of the SCBs in Tanaka stores the complete set of MSFs that form the whole video program from the MSFSs but does not cache them, so that after transmission of any video program has been completed, none of the MSFs of the program will be available for response to future requests. Furthermore, since all of the MSFs are stored in memory 21 over the course of transmission, the SCBs do not combine the temporarily stored MSFs with unstored MSFs from the MSFSs to form the complete video program for transmission.

### **CLAIMS 78-83**

Claims 78-83 are directed to the configuration where a central server and one or more proxy servers are connected through a backbone network connection, and the invention in these claims permits reduction of bit rate in the backbone network connection. In Tanaka's system, MSF servers 1000, 1001, etc. are not arranged in a central server, proxy server configuration through a backbone network connection. Rather, they are all connected in parallel to ATM switch 4000. Therefore, the data transmission rate control between servers 1000, 1001 ...and the switch does not solve the problem addressed by claims 78-83. AS noted above, Tanaka does not reduce the transmission rate from the MSFSs as a whole to each of the SCBs. Unlike Tanaka, the features in claims 78-83 reduce the peak backbone rate between the central server and proxy server.

### **Claims 2, 9, 11, 12, 17-19, 30, 37, 39, 42, 49, 51, 52, 57-59, 69 and 73**

Column 2, Lines 60-63 of Ong states that "checking if the allocated sections of the memory buffer are full and, if so, removing the oldest-in-time, lowest priority data block to free a section of the memory buffer; and." This means that whenever the allocated sections of the memory buffer are full, data blocks are removed to free up a section of the memory buffer. This **does not** imply that the data blocks stored in the memory buffer are removed at random times (i.e. whenever the memory buffers are full, which may or may not happen randomly) so that they are not cached for time periods that are independent of time, contrary to the requirements of Claims 2, 30, 39, 42 and 69.

As for Claim 17, instead of deleting the most recently cached portion of a title as in Claim 17, Ong removes the oldest-in-time data block, which is diametrically opposite to what is required by Claim 17. The phrase “lowest priority” on line 61, column 2 of Ong clearly refers to the oldest-in-time data block, rather than the “most recently cached portion of a particular title” in the rejection. The examiner’s argument that such so called “cached portion” has the “lowest priority given that all groups requesting tht portion have received it” is totally without any factual basis in Ong, and is based on subjective belief. In fact, it is diametrically opposite to the teachings of Ong. We, therefore, disagree with the examiner’s statement in Item 7 on Page 9 of the office action. The same is true for claim 57.

#### **Claims 5-7, 33-35 and 45-47**

The examiner has ignored the arguments in our last amendment on non-analogous art and distinguishing the claims from Tanaka and U.S. Patent 6,570,579 to MacInnis et al. and simply repeated the rejection made in the office action of Dec. 1, 2003. It is specifically requested that the examiner respond to these arguments.

#### **Claims 20-22, 28 and 60-62**

Claim 28 is discussed above. In addition, the examiner has ignored the arguments in our last amendment on distinguishing these claims from Tanaka and Cherkasova and essentially repeated the rejection made in the office action of Dec. 1, 2003. It is specifically requested that the examiner respond to these arguments. The examiner appears to be reading features into the referenced sections of Cherkasova where such features do not exist.

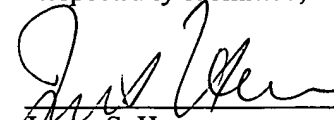
#### **Claims 23, 63 and 68**

Claim 68 is discussed above. In addition, the examiner has ignored the arguments in our last amendment on distinguishing these claims from Tanaka and Dias and simply repeated the rejection made in the office action of Dec. 1, 2003. It is specifically requested that the examiner respond to these arguments.

EXPRESS MAIL NO.:

EV437668814US

Respectfully submitted,



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11/8/04

Date